

Australian Flies of Genus *Actina* (*Stratiomyiidae*)

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In Australia there are four defined genera of Stratiomyiidae that come within the tribe Beridini, and three of these are represented by one described species each. It is not possible to associate the Australian species seen by me with a number of other genera that are allied and described from other parts of the world, as the species before me do not fall into line with the characters cited; nevertheless there are several that grade towards those genera and are here retained under genus *Actina*, which is used in a wider sense than usual. The following key will enable the new species to be relegated to this genus:—

1. Abdomen short, more or less parallel sided and all the segments wider than long; eyes pubescent or bare; median vein three or four branched; antennae quite normal in shape and very similar to that of *Neoexaireta*; the tenth segment is usually about the length of the two preceding ones never less; scutellum with six or eight spines *Actina* Meigen
- Abdomen long, widening towards the apex and at least some segments are as long as wide; eyes invariably bare; antennal segments normal or irregular in size 2
2. Antennae with the three last segments very minute, being reduced in both length and width; scutellum with four spines; median vein three branched *Xanthoberis* White
- Antennae not so formed 3
3. Fourth to ninth antennal segments about equal in size, the tenth about as long as four of these. Scutellum with four spines. Median vein four branched *Neoexaireta* Ost.-Sacken
- Third to seventh antennal segments subequal, the eighth and ninth are much longer and the tenth as long as the four preceding ones. Scutellum with six spines. Median vein two branched *Eumecasis* Enderlein

Only *Actina* and *Neoexaireta* are commonly found, both being very plentiful in collections and therefore are best understood. They may be distinguished by many characters, of which the more important ones seem to be in the hairs of the pleura. *Neoexaireta* has a bare area extending from the pteropleura, immediately below the insertion of the wing, to the hypopleura, between the intermediate and posterior coxae. When the posterior leg is drawn up

against the body, it lies along this bare area which perhaps accounts for its nature. The whole of the pteropleura is hairy on *Actina*, and the hypopleura is bare; variations in the density of the hairs occur in this genus, so that sometimes the hairs on the pteropleura are scantily represented. Hairs are present on the metanotum of *Neoeuxaireta*, and absent there on *Actina*. The hind femora may be equally thickened in both genera, but on *Neoeuxaireta* a small ventral tubercle occurs well before the apex and seems to be distinctive. Hitherto none of these characters have been regarded as of generic importance.

GENUS ACTINA MEIGEN.

Actina Meigen, Klassif. i. 1804, p. 116. White, Proc. Roy. Soc. Tasmania, 1914, p. 49; and Proc. Lin. Soc. N.S. Wales, xli, 1916, p. 77. Hardy, Proc. Roy. Soc. Tasmania, 1920, p. 40. Malloch, Proc. Lin. Soc. N.S. Wales, liii, 1924, p. 40.

The hairy nature of the eyes and the spines of the scutellum are two characters usually regarded of generic importance for this genus, but neither are maintained on the species before me. A male caught in a fruit-fly lure and given to me by Mr. A. F. Perkins, comes from somewhere in the Toowoomba district, Queensland, and is now mounted whole on a micro-slide. The pubescence of the eyes, though on a male, is of the same nature as that on the typical female, and moreover the hind metatarsus is considerably dilated, a character not seen by me on any other species. Again from the dense rain-forest regions of Queensland and Western Tasmania, come two further forms on which the eyes are bare, and are described below. The scutellum contains normally six spines, but one species and one sex only of another has eight. According to modern innovations, all or nearly all of these species would be placed in different genera, but they are very much alike in all general features and are too closely related to be treated other than as one generic conception.

KEY TO SPECIES OF ACTINA.

1. Eyes thickly pubescent, long on the male and short on the female. Pleural hairs plentiful 2
 Eyes entirely bare, pleural hairs scanty 5
2. Wings with a large dark costal blotch around the stigma and reaching towards the apex. Abdomen entirely blue-black, thorax with abundant bright yellow pubescence. Scutellum with eight spines .. *ocinis* n. sp.
 Wings hyaline, or uniformly smoky. Scutellum normally with six spines, rarely eight 3
3. Spines of scutellum entirely metallic green; abdomen entirely black *costata* White
 Spines of scutellum invariably yellow at least on the apical half. Abdomen rarely entirely black, usually some traces of yellow to be found on the under-side 4
4. First antennal segment about or less than one and a half times the length of the second. Australian mainland *incisuralis* Macquart.
 First antennal segment at least twice the length of the second. Tasmanian species *nigricornis* Enderlein

Key to Species of Actina.—Continued.

5. First antennal segment about or less than one and a half times the length of the second; the apical segment about the length of the eighth to ninth ..

imperfecta n. sp.

First antennal segment at least twice the length of the second; the apical segment about the length of the sixth to ninth

silvicola n. sp.

ACTINA OCINIS n sp.

Male: the head is similar to that on *A. incisuralis*, but the hair of the eyes is shorter. The antennae are yellow. The copper-coloured dorsal area of the thorax is overlaid by abundant long yellow hairs, the scutellum is similarly coloured and has eight spines, but the pleura is blue black, as is also the abdomen both above and below. The legs are black with the intermediate and anterior tibiae and tarsi sometimes dirty yellowish. The wings are somewhat smoky with a large fuscous area around the stigma, and extending towards the apex of the wing.

Female: the head is similar to that of *A. incisuralis*, but the frons has hair scattered all over it and is sunken; the eyes have very short pubescence. The thorax is vivid green above and has abundant yellow pubescence. In other characters it resembles the male. The metallic colours are liable to vary, as is usual in the genus. Length, $7\frac{1}{2}$ to 8 mm.

Hab.—Queensland; Brisbane, April and May, 1928 to 1931. 25 males, 9 females. It was also seen in September and December, 1931.

The species is rather common during the autumn, and is to be found resting on the underside of leaves and is readily seen in such positions on fig-trees, sometimes in company with *A. incisuralis*. When alive the eyes are green with a large blue blotch above, this area, having a reddish-purple edge, touches only the frontal margin.

ACTINA COSTATA WHITE.

Actina costata White, Proc. Roy. Soc. Tasmania, 1914, p. 51; and Proc. Lin. Soc. N.S. Wales, xli. 1916, p. 77. Hardy, Proc. Roy. Soc. Tasmania, 1920, p. 41; and Proc. Roy. Soc. Queensland, xxxvi. 1924, p. 40.

This form is metallic blue-green on the thorax of both sexes, but the leg colouration varies. The female has the hair distributed all over the frons, whereas on *A. incisuralis* there is a bare strip on the central third of the frons.

Hab.—Tasmania: not uncommon at high altitudes. Victoria: there are five specimens labelled "Begong Plains, 5600-6000 ft., Jan., 1928, F. E. Wilson." These differ only in having the eyes slightly wider apart.

ACTINA INCISURALIS MACQUART.

Beris incisuralis Macquart, 1847-9; Walker 1854.

Actina incisuralis White 1916 (part); Hardy 1920 and 1924.

Beris filipalpis Macquart 1849.

Actina filipalpis Enderlein 1921

Beris fusciventris Macquart 1849.

Beris nitidithorax Macquart 1849.

Actina victoriae Hill 1919; Hardy 1920; Malloch, Proc. Lin. Soc. N.S. Wales, liii, 1928, p. 364.

(For references not cited in full above, see these proceedings, Vol. xxxvi., 1924, p. 40).

Synonymy.—When cataloguing the Stratiomyiidae for my paper published in 1920, I went rather fully into White's Tasmanian specimens of *Actina incisuralis* and the descriptions of *A. victoriae*, discovering the difference in the basal segments of the antennae. In 1924, I again revised the position using this clue in antennal structures on the material from various States, and I incorporated my conclusions concerning Enderlein's species described in the interval. Since then the question has arisen with regard to the type locality "Tasmania" given in the fourth supplement of "Dipteres Exotiques," by Macquart, and it seems necessary to amend this to "Sydney" (see Hardy, Proc. Lin. Soc. N.S. Wales, liv., 1929, p. 61). The status of the Australian and the Tasmanian forms may be regarded as of subgeneric value, and if so, then it scarcely matters about separating them under more than one specific conception. So far as I have been able to discover, there is only the antennal character to maintain their present position and gradations may yet be found in this structure.

In Brisbane there occurs a dark form which, at the lightest, has the lateral margins of the abdomen broadly black, thus restricting the orange colour to larger or smaller spots on the central area. The tendency for the abdomen to become completely black is especially marked on the male, but the underside usually retains its lighter tones in such cases.

From Stanthorpe, only females are before me, and on them the abdomen has the typical colouration.

In Sydney, the typical female occurs, these having practically no lateral dark stripe, or an incomplete one, but the males before me are of the dark form.

From Melbourne, the dark males are before me, and also from Millgrove there is a male on which three segments are uniformly dirty brown. The females from Victoria, judging from Hill's species, of which I have seen one, are similar to those from Sydney.

From Tasmania, typical coloured females are before me, but one male from Sheffield and one male from Hobart both have the narrow darkened lateral border of the female, whilst other males, one being the largest I have yet seen ($7\frac{1}{2}$ mm.), are black or practically so.

With regard to the male, it would seem that gradations are found from the typical female colouration on Tasmanian specimens to the practically black colouration that is to be found throughout the eastern coast of Australia, as well as in Tasmania. Dark females are not common in the southern States, but quite plentiful in Queensland.

ACTINA NIGRICORNIS ENDERLEIN.

Actina incisuralis White 1914 and part of 1916; Hardy 1920 (nec. Macquart).

Actina nigricornis Enderlein, Mitt. Zool. Mus. Berlin, x, 1921, p. 191.

Actina filipalpis Hardy, Proc. Roy. Soc. Queensland, xxxvi, 1924, p. 40 (nec. Macquart).

It would seem that Enderlein described this species from a very dark form of the female on which the orange colour had disappeared. The name given by Enderlein seems to be the only legitimate one that is applicable to Tasmanian specimens.

Hab.—Tasmania: throughout the whole eastern half of the island, at low elevations.

ACTINA IMPERFECTA n. sp.

Eyes bare and widely separated on both sexes. The frons is entirely bluish green with two square spots of white pubescence occupying almost the whole width just above the antennae. This pubescence extends down the face which is otherwise also bluish green and, as on other species, much narrower on the male than on the female. Proboscis and palpi, like the antennae, are yellowish, but are without the black stains that occur on the fourth to tenth segments. In profile the antennae are seen to be inserted above the centre of the head; this and other general features being like that of other species.

The thorax is metallic green above, with humeral and postalar tubercles yellow on the female, and the underside is also yellow; on the male the thorax is bronze green above and below, with yellow humeral and postalar callus. The scutellum in both sexes is metallic with light yellow spines, six on the female and eight on the male.

The abdomen is dirty yellowish with violet tinges, these markings becoming more defined on the male. The light colour is comparable to that on *A. incisuralis*, and the variations in the colour marks are very similar to those of that species, the lateral dark border being well defined on some specimens, thus there is a range of forms from light to dark ones, but specimens completely black above have not been seen. The abdomen is yellow below on both sexes.

The wings have the typical venation except the third median vein is very stunted on the male and missing on the female; they are distinctly smoky along the anterior border, but show a clear spot just beyond the stigma, but these markings may be obscure. Except for the hind tibiae being stained apically on the female, and almost entirely black on the male, and the first segment of the posterior tarsi being apically black, and the following ones on the male only being black, the legs are yellow.

Hab.—Queensland : National Park, March, 1921, 1 male holotype and 1 female allotype. Paratypes are 1 female, March, 1929 (A. J. Turner) ; 1 female with clear wings, November, 1925 (A. J. Turner) ; 1 male, December, 1921 (H. Hacker) ; 1 female with a long third median vein, October, 1923 (H. Hacker) ; Tamborine Mt., 1 male, October, 1925 (H. Hacker) ; Mapleton, 1 male, March, 1924 (H. Hacker).

ACTINA SILVICOLA n. sp.

The eyes are bare and widely separated on both sexes. The frons is metallic blue on the male and metallic green on the female. The pubescence on the frons and face, and the colour of the antennae, proboscis and palpi are as on *A. imperfecta*, but the tenth antennal segment is unusually long, being about half the length of the third to ninth segments united, whereas on other species it is as long as or slightly longer than the two preceding segments.

The thorax is metallic green on the female and blue on the male, both above and below, but the humeral and postalar callus are yellow. The scutellum is similarly coloured on each sex and with six yellow spines ; a seventh is indicated on the male.

The abdomen above is dirty yellow in the centre, bordered by somewhat brownish sides and bands along the incisions of the sclerites, thus cutting the yellow into spots. The darker colouration is more intense and widely spread on the male where three yellow spots occur, than on the female which has four such spots. Below, the abdomen is yellowish on both sexes.

The legs are yellow except on the male the posterior femora have the apical half black and the tibiae are mostly black. The wings have the typical venation, the third median vein being present ; the smoky area along the anterior border of the wing is as in *A. imperfecta*, and interrupted by a clear spot just beyond the stigma.

Hab.—Tasmania : Strahan, People's Park, February, 1924. 1 male and one female, both taken by sweeping the lower branches of tall trees.

Note.—On the male, the hook-like claspers of the genitalia are exerted and clearly defined, having a shape such as I have not seen on any other species. No attempt has yet been made to study the genitalia of these obscure forms, but I have examined some in situ without discovering characters that would aid in distinguishing between species, other than in the present case. In general appearance this species looks very like *A. imperfecta*, and presumably it is subject to similar variations in colour markings.
